

1169. Revenge of the Syph(ilis): Investigating Congenital Syphilis at a Tertiary Care Center Amidst a Rising Epidemic

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Session: P-68. Pediatric Maternal-child infections

Background. Congenital syphilis is a chronic infection acquired by the fetus in utero from a mother infected with *Treponema pallidum*. It has a large spectrum of disease manifestations from asymptomatic infection to blindness, abnormal bone and teeth formation, deafness, or even death. Despite antenatal screening and the availability of effective treatment the incidence of congenital syphilis has risen since 2012, with 23.3 cases per 100,000 live births in 2017 according to the Centers for Disease Control. We sought to investigate the epidemiology, clinical manifestations, and treatment outcomes of congenital syphilis.

Methods. We undertook a retrospective review of individuals born at Texas Children's Hospital from January 1, 2010 to May 15, 2021 to evaluate compliance with current diagnostic and treatment recommendations. Diagnostic and billing codes for congenital syphilis were used to generate a list of subjects. Patient demographics and clinical details were abstracted from the electronic medical record (EMR). Statistics were performed using Microsoft Excel.

Results. 107 children (52% male, 48% female) were identified from diagnostic and billing codes in the EMR under the SNOMED-CT diagnosis of "congenital syphilis" and were less than two years of age at the time of diagnosis. All received penicillin within one month of diagnosis. 94 of these had a skeletal x-ray performed, with 11 (12%) having an abnormal skeletal x-ray consistent with congenital syphilis. 88 (82%) had a lumbar puncture done with a quantitative CSF VDRL obtained. 88 received aqueous penicillin G for proven/highly probable or possible syphilis. Four patients were deceased at the time of data inquiry. Of those with abnormal skeletal x-rays, "metaphyseal lucency" was the most common finding.

Conclusion. Congenital syphilis remains a significant concern in the United States and carries the risk of significant long-term morbidity for infants and children. Antenatal screening with appropriate treatment in pregnancy and adequate follow-up would decrease the need for neonatal evaluation and treatment.

Disclosures. C. Mary Healy, MD, Dexcom (Shareholder)Intuitive (Shareholder)Quidel Corporation (Shareholder)Up to Date (Other Financial or Material Support, Honorarium)Vapotherm (Shareholder)

1170. Do Rotavirus Strains Affect Vaccine Effectiveness? A Systematic Review And Meta-analysis

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Session: P-69. Pediatric Vaccines

Background. Rotavirus causes 215,000 deaths from severe childhood diarrhea annually. Two rotavirus vaccines – a monovalent vaccine containing a single rotavirus strain (RV1) and a pentavalent vaccine containing 5 rotavirus strains (RV5) – are used in routine immunization programs of nearly 100 countries. Concerns exist that rotavirus vaccines may be less effective against rotavirus strains not contained in the vaccines which could subsequently cause selective pressure and strain replacement. We estimated the vaccine effectiveness (VE) of RV1 and RV5 against vaccine (homotypic) and non-vaccine (partially and fully heterotypic) strains.

Methods. After conducting a systematic review, we meta-analyzed 31 case-control studies (N=27,293) conducted between 2006 and 2020 using a random-effect regression model.

Results. In high-income countries, RV1 VE was 10% lower against partially heterotypic (p-value=0.04) and fully heterotypic (p-value=0.10) compared to homotypic strains (homotypic VE: 90% [95% CI: 82, 94]; partially heterotypic VE: 79% [95% CI: 71, 85]; fully heterotypic VE: 80% [95% CI: 65, 88]; Figure 1). In middle-income countries, RV1 VE was 14 to 16% lower against partially heterotypic (p-value=0.06) and fully heterotypic (p-value=0.04) compared to homotypic strains (homotypic VE: 81% [95% CI: 69, 88]; partially heterotypic VE: 67% [95% CI: 54, 76]; fully heterotypic VE: 65% [95% CI: 52, 75]; Figure 1). Strain-specific RV5 VE differences were less pronounced (Figure 2). Limited data were available from low-income countries.

Figure 1. Vaccine effectiveness by country income level and strain type, for RV1.

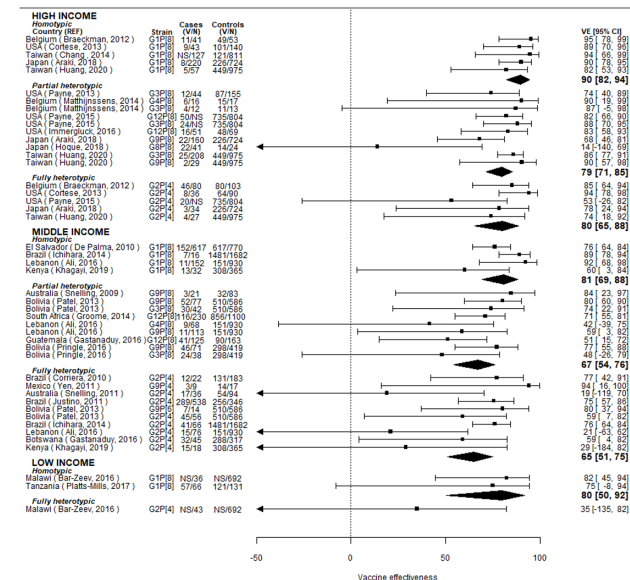
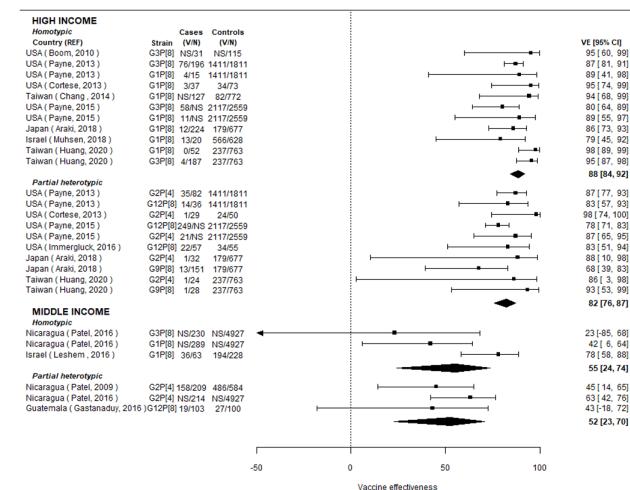


Figure 2. Vaccine effectiveness by country income level and strain type, for RV5.



Conclusion. Vaccine effectiveness of RV1 and RV5 was somewhat lower VE against non-vaccine than vaccine strains. Ongoing surveillance is crucial to continue long-term monitoring for strain replacement, particularly in low-income settings where data are limited.

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1171. Measles and Rubella Seroprevalence among HIV-infected and uninfected Children and Adults in Zambia

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Session: P-69. Pediatric Vaccines

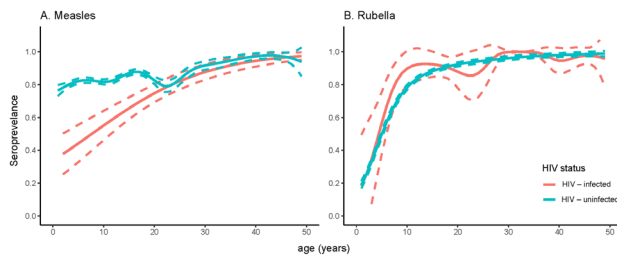
Background. Despite the availability of safe and effective vaccines, measles and congenital rubella syndrome remain important causes of morbidity and mortality. HIV-infected individuals may be more vulnerable to measles because of poor immune responses to vaccination. Population-level estimates and comparisons of measles and

rubella seroprevalence between HIV-infected and uninfected children and adults in sub-Saharan Africa are needed to guide vaccination policy and control strategies.

Methods. This cross-sectional study was performed by analysing a selected and weighted subsample from the Zambia Population HIV Impact Assessment survey (ZAMPHIA). ZAMPHIA was conducted in 2016 to estimate national HIV incidence and prevalence in Zambia. Dried blood spots and plasma samples were tested for IgG antibodies to measles and rubella viruses using a commercial enzyme immunoassay. We estimated national age-specific measles and rubella seroprevalence by HIV infection status using hierarchical generalized additive models.

Results. Specimens from 9521 HIV-uninfected (3840 children age under 10 years, 3981 youth age 10-19 years, and 1700 adults age 20-49 years) and 331 HIV-infected (53, 107, and 171 respectively) individuals were included in the study. Measles seroprevalence was lower among HIV-infected children (46.4%) compared to HIV-uninfected children (76.4%, $p < 0.001$). In both HIV-uninfected and HIV-infected individuals, measles seroprevalence increased steadily with age but more rapidly in the HIV-infected until about the age of 20 years when the seroprevalence was similar between the two groups. Above 20 years, measles seroprevalence was similar between HIV-infected and uninfected adults. There was no significant difference in rubella seroprevalence between HIV-infected and HIV-uninfected individuals.

Figure 1. Measles and Rubella Age-specific Seroprevalence



The lines represent generalized additive model fits for the mean (solid) and 95% confidence intervals (dashed). Data are grouped by age in years and year 0 includes only specimens from children 9-11 months. Rubella-containing vaccine was not available in the public sector prior to the serosurvey.

Conclusion. Measles seroprevalence was lower among HIV-infected than uninfected children and youth. HIV-infected children would likely benefit from revaccination. Many children were susceptible to rubella before the introduction of the combined measles and rubella vaccine in Zambia.

Disclosures. Kyla Hayford, PhD, MA, Pfizer, Inc. (Other Financial or Material Support, KH conducted the study and analyses while working at the Johns Hopkins School of Public Health but is an employee at Pfizer, Inc. as of 26 October 2020.)

1172. SARS-CoV-2 Vaccine Hesitancy in Caregivers of Hospitalized Children

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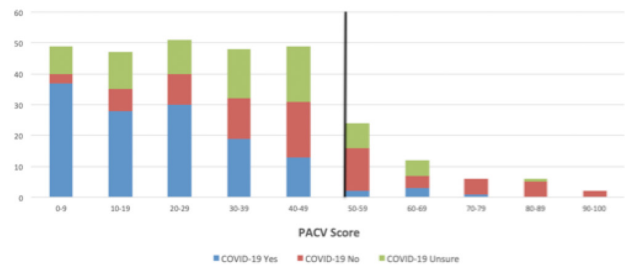
Background. SARS-CoV-2 vaccine hesitancy (VH) is hindering nationwide vaccination efforts; little is known about caregiver SARS-CoV-2 vaccine acceptance for children. We aimed to identify associations with SARS-CoV-2 VH in caregivers of hospitalized children.

Methods. We conducted a prospective cross-sectional survey in English and Spanish of caregiver COVID-19 knowledge, attitudes, behaviors, and associated VH among hospitalized children 6 months - 18 years at a large pediatric medical institution. Parents were approached daily, averaging 4-5 days/week, from 12/8/2020--4/5/2021. VH was assessed using the Parent Attitudes about Childhood Vaccines (PACV) survey; PACV score ≥ 50 denoted VH. Descriptive statistics and multivariable logistic regression were used. Responses were categorized.

Results. 295/307 (96%) of approached caregivers enrolled; 79% were ≥ 30 years, 68% were married/ living with a partner, and 57% had at least some college. 36% identified as white, 19% Black, and 46% Hispanic/ Latino. 53% of caregiver children had public insurance. 91% of caregivers self-reported their children were up to date with routine vaccines. 17% of caregivers were vaccine-hesitant overall. 50% of caregivers were willing to receive COVID-19 vaccine themselves. Figure 1 shows intention to vaccinate their child by PACV score.

65% knew someone who was hospitalized for COVID-19. 67% were scared of their child getting COVID-19. However, 49% were scared of their child getting the vaccine, 28% did not want to vaccinate their child and 27% were neutral in the intention to vaccinate their child. Caregivers who did not intend to vaccinate their child were more likely to be Black (27% vs. 16%, $p=0.04$) and less likely to be Hispanic/ Latino (33% vs. 49%, $p=0.02$). Table 1 shows attitudes, beliefs, and behaviors surrounding the COVID-19 pandemic and vaccine in caregivers who did or did not intend to vaccinate their child.

Figure 1



COVID-19 vaccine uptake by PACV score

Table 1

Item	Parent response	n (%)	Caregivers of children who will receive the COVID-19 vaccine n = 134	Caregivers of children who will not receive COVID-19 vaccine n = 81	p-value
The COVID-19 pandemic has influenced my decision to give my child regular childhood vaccines	Strongly agree	35 (11.9)	27 (20.1)	3 (3.7)	< 0.001
	Agree	47 (15.9)	28 (20.9)	6 (7.4)	
	I do not agree nor disagree	69 (23.4)	26 (19.4)	18 (22.2)	
	Disagree	106 (35.9)	39 (29.1)	33 (40.7)	
After the COVID-19 pandemic, I am more likely to give my child regular childhood vaccines	Strongly agree	47 (15.9)	36 (26.9)	5 (6.2)	< 0.001
	Agree	76 (25.8)	50 (37.3)	10 (12.3)	
	I do not agree nor disagree	81 (27.5)	21 (15.7)	22 (16.4)	
	Disagree	63 (21.4)	17 (12.7)	27 (20.1)	
A COVID-19 vaccine will play an important role in bringing the pandemic under control	Strongly agree	67 (22.7)	58 (43.3)	4 (4.9)	< 0.001
	Agree	104 (35.3)	62 (46.3)	8 (9.9)	
	I do not agree nor disagree	86 (29.2)	14 (10.4)	33 (40.7)	
	Disagree	23 (7.8)	0 (0)	21 (25.9)	
After the COVID-19 pandemic, I am more likely than before to vaccinate my child against the flu	Strongly agree	44 (14.9)	37 (27.6)	2 (2.5)	< 0.001
	Agree	81 (27.5)	59 (44.0)	7 (8.6)	
	I do not agree nor disagree	81 (27.5)	19 (14.2)	18 (22.2)	
	Disagree	62 (21.0)	10 (7.5)	37 (45.7)	
The COVID-19 pandemic has made me more supportive of vaccines in general	Strongly agree	42 (14.2)	37 (27.6)	1 (1.2)	< 0.001
	Agree	74 (25.1)	57 (42.5)	3 (3.7)	
	I do not agree nor disagree	99 (33.6)	26 (19.4)	26 (32.1)	
	Disagree	59 (20.0)	8 (6.0)	37 (45.7)	
When a vaccine against COVID-19 is recommended for use in adults, I will receive the COVID-19 vaccine	Strongly agree	61 (20.7)	58 (43.3)	1 (1.2)	< 0.001
	Agree	85 (28.8)	70 (52.2)	2 (2.5)	
	I do not agree nor disagree	70 (23.7)	5 (3.7)	6 (7.4)	
	Disagree	41 (13.9)	1 (0.7)	36 (44.4)	
I am scared of my child getting COVID-19	Strongly agree	93 (31.5)	54 (40.3)	18 (22.2)	< 0.001
	Agree	105 (35.6)	54 (40.3)	20 (24.7)	
	I do not agree nor disagree	46 (15.6)	8 (6.0)	19 (23.5)	
	Disagree	36 (12.2)	10 (7.5)	17 (21.0)	
I am scared of my child getting the COVID-19 vaccine	Strongly agree	15 (5.1)	8 (6.0)	7 (8.6)	< 0.001
	Strongly agree	60 (20.3)	10 (7.5)	38 (46.9)	
	Agree	84 (28.5)	29 (21.6)	24 (29.6)	
	I do not agree nor disagree	71 (24.1)	30 (22.4)	12 (14.8)	
During the COVID-19 pandemic, it is especially important to get the flu shot	Strongly agree	54 (18.3)	45 (33.6)	4 (4.9)	< 0.001
	Agree	106 (35.9)	66 (49.3)	9 (11.1)	
	I do not agree nor disagree	82 (27.8)	18 (13.4)	25 (30.9)	
	Disagree	39 (13.2)	4 (3.0)	30 (37.0)	
I am scared to take my child out of the house to get the flu shot because of the COVID-19 pandemic	Strongly agree	13 (4.4)	6 (4.5)	3 (3.7)	0.012
	Agree	39 (13.2)	23 (17.2)	4 (4.9)	
	I do not agree nor disagree	57 (19.3)	23 (17.2)	8 (9.9)	
	Disagree	121 (41.0)	56 (41.8)	39 (48.1)	
	Strongly disagree	65 (22.0)	26 (19.4)	27 (33.3)	

Caregiver attitudes, beliefs, and behaviors surrounding the COVID-19 pandemic and the COVID-19 vaccine

Conclusion. The majority of caregivers believe that SARS-CoV-2 vaccine will help control the pandemic, but less than half plan to vaccinate their children. A quarter of caregivers expressed uncertainty regarding the vaccine and therefore may be amenable to education and discussion. COVID-19 VH is different from VH towards routine vaccinations. More research is needed to address COVID-19 specific VH.

Disclosures. C. Mary Healy, MD, Dexcom (Shareholder)Intuitive (Shareholder)Quidel Corporation (Shareholder)Up to Date (Other Financial or Material Support), Honorarium)Vapotherm (Shareholder)

1173. Changes in Invasive Pneumococcal Disease Incidence Following Introduction of PCV10 and PCV13 Among Children < 5 Years: The PSERENADE Project

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Session: P-69. Pediatric Vaccines

Background. Higher valency pneumococcal conjugate vaccines (PCV10 and PCV13) replaced PCV7, and an updated global analysis of PCV impact on invasive pneumococcal disease (IPD) incidence is needed. We aimed to estimate the change in